TACKLING THE REGRESSIVITY OF THE ITALIAN TAX SYSTEM: AN OPTIMAL TAXATION FRAMEWORK WITH HETEROGENEOUS RETURNS TO CAPITAL

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Tackling the regressivity of the Italian tax system: An optimal taxation framework with heterogeneous returns to capital

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Abstract

In this paper, we exploit the new data available from the European Central Bank's Distributional Wealth Accounts (DWA) to reconstruct the distribution of capital income in Italy by accounting for heterogeneous returns to capital. With respect to previous estimates, we find that capital income is more concentrated along the income distribution and the Italian tax system is more regressive with lower tax rates hinging on the top 7%. We show that such rates are remarkably lower than those suggested by an optimal taxation approach and we provide estimates for revenues and inequality reductions that could be attained by applying (higher) optimal rates either to capital income or wealth while controlling for various degrees of behavioral responses. These results provide a direction for revenue-increasing and inequality-reducing tax reforms in Italy.

Keywords: Optimal tax; Inequality; Capital Income; Wealth tax
JEL classification: D31 · E01 · H2 · H21

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1 Introduction

Income and wealth inequality has been incessantly increasing in most of developed economies since the 80s (Chancel et al., 2022; Guzzardi et al., 2023; Acciari et al., 2024). One of the most plausible explanations for the increasingly right-skewed distribution of wealth observed across time and space is heterogeneity returns to capital (Benhabib and Bisin, 2018). The existence of a self-reinforcing process of amplification of inequality via increasing returns at the top was first conjectured by Piketty (2014). Later, the seminal works by Fagereng et al. (2020) and Bach et al. (2020) did confirm the pattern of increasing rates of return on net worth and financial capital across the wealth distribution, and kickstarted a fast-growing body of empirical evidence on the topic of returns heterogeneity (e.g., Iacono and Palagi, 2023; Ozkan et al., 2023; Smith et al., 2023).

An obvious source of both rising wealth concentration and increasing heterogeneity of returns is the rich diversity in wealth composition across the wealth distribution, i.e. the fact that richer households invest their capital in more profitable assets than those bought by the average investor. However, the heterogeneity in wealth composition can hardly be estimated using Household Finances and Consumption Surveys (HFCS), because in these surveys wealthy households are under-represented and tend to respond less accurately (Waltl and Chakraborty, 2022). The issue of increasing returns to wealth at the top has also entered the global political debate, as it is closely intertwined with the proposal to introduce a global minimum wealth tax on ultra-high-net-worth individuals, recently presented by Zucman (2024) at the G20 meeting in Rio de Janeiro.[1]

In this paper, we improve the estimation of capital income and rates of return along the Italian wealth distribution by exploiting the new data available from the Bank of Italy and European Central Bank's Distributional Wealth Accounts (DWA). This new dataset, which links HFCS data with Quarterly Sector Accounts (QSA), allows to assess the financial positions for all the institutional sectors, including households, in EU countries. This enhances the estimates for wealthy households which are not always fully covered in survey data.[2]

[1]The proposal elaborated by Zucman (2024) aims to introduce a minimum global standard for ultra-high-net-worth individuals taxation, amounting to 2% of their wealth. Such a proposal would reduce the current observed rates of return from 7.5% to 5.5% post-tax.

[2]Information on DWA can be obtained at https://data.ecb.europa.eu/data/datasets/DWA/data-information

In particular, our work contributes to different streams of literature along three dimensions. *First*, with our fresh estimates on capital income distribution which account for the heterogeneity in rates of return, we contribute to the literature concerned with the empirical estimation of heterogeneity in returns on wealth, both offering estimates for Italy and providing a methodology that can be applied to harmonize the Distributional National Accounts (Alvaredo et al., 2020) with the official DWA data in all European countries for which it is available. Our approach is alternative to the adjustment of survey data on the top tail using Generalized Pareto models estimated from rich lists or top wealth shares derived from tax data and leaked information on wealth held in offshore tax havens (Waltl and Chakraborty, 2022; Waltl, 2022).

Second, the improvements in the DWA data allow us to more accurately assess the redistributive and revenue potential of various taxation schemes involving capital income and wealth. Given the regressive tax rates observed for the top 5% of the income distribution in Italy (Guzzardi et al., 2023) and considering the newly-constructed capital income distribution, we propose an analysis in the realm of optimal tax theory (Saez and Stantcheva, 2016, 2018) aimed at exploring hypotheses of income taxation reforms that could correct for the decreasing empirical tax rates. Differently from other approaches,[3] we embed returns heterogeneity directly in the policymaker's concerns for redistribution. Our assumption is viable as Fagereng et al. (2020) suggests that higher returns do not necessarily reward more skilled investors, but may derive from an unfair distribution of access to financial markets, differential investment opportunities, unequal starting conditions, and higher risk-bearing possibilities for the wealthiest. Again, our approach could be followed in all the countries where rising inequality at the top is observed, such as the US, France, and the Netherlands (Saez and Zucman, 2019; Bozio et al., 2024; Bruil et al., 2022).

Third, we contribute to the academic and policy debate on the Italian taxation system within a more comprehensive framework. Many existing studies either overlook the regressivity of the whole Italian tax system (Cammeraat and Crivelli, 2020) or focus on detailed analyses of specific types of taxes (Gastaldi et al., 2017; Gastaldi and Liberati, 2018; Di Caro, 2020; Baldini, 2021), including capital income taxes (Bordignon et al., 1999, 2001; Alworth et al., 2003; Branzoli et al., 2018). In contrast,

[3] The consequences of heterogeneity in returns on capital income and wealth taxation have been previously explored in an overlapping generation framework (Guvenen et al., 2023), in models that explicitly consider the microeconomics phenomena of *type*- and *scale*-dependence (Schulz, 2021; Gaillard and Wangner, 2022; Gerritsen et al., 2024) or correlation between heterogeneity in savings behaviour and earnings ability (Ferey et al., 2024).

by examining the entirety of the tax system, we demonstrate how an optimal taxation framework can offer valuable insights into achieving a fairer distribution of the tax burden and addressing the regressivity inherent in the current system. Additionally, we propose introducing a wealth tax as an alternative to increasing income taxes at the top of the income distribution. This approach aims to correct the system's regressivity while ensuring that the overall effective tax rate for the wealthiest individuals remains aligned with, but does not exceed, the rates derived from the optimal taxation framework, thereby maintaining both fairness and efficiency in taxation.

Our findings uncover striking disparities in rates of return to wealth across Italian households, with rates climbing from 2.5% for the bottom 90% to a sharp 5% for the wealthiest 10%. This implies higher income concentration at the top of the income distribution and reveals that Italy's tax system is more regressive than previously estimated, with tax rates disproportionately benefiting the top 7%. To address the regressivity of the tax system, our policy simulations, grounded on an optimal taxation framework and different levels of behavioral responses, show that increasing taxes on the richest individuals —up to 60% for the top 0.1%— could simultaneously reduce inequality, enhance tax fairness, and strengthen public revenues. Additionally, introducing a progressive wealth tax levied on the top 7% of the income distribution, where the current tax system appears regressive, could be a viable solution to tackle possible income deferring strategies of the wealthiest individuals. Our wealth tax addresses concerns about liquidity constraints for individuals subject to this tax and is consistent with proposals by Piketty (2014), Landais et al. (2020), and Advani and Tarrant (2021). The results of our work provide a direction for revenue-increasing and inequality-reducing tax reforms in Italy.

The rest of this work is structured as follows: Section 2 details the data and methods used to reconstruct Italy's capital income distribution and perform our optimal tax simulations. Section 3 presents our new capital income distribution and estimates of wealth return heterogeneity for Italy, and explores various taxation schemes to address tax system regressivity. Section 4 discusses the design of a gradual tax reforms and potential administrative and policy constraints. Finally, Section 5 concludes.

2 Data and methodology

In this Section, we outline the data and methodology used in this work. We start with Section 2.1 by presenting the data and the approach used to construct an improved distribution of capital income and total income in Italy which better accounts for heterogeneous rates of return on wealth. Next, we introduce our optimal taxation framework in Section 2.2, followed by the methodology for estimating the model using the enhanced Italian data in Section 2.2.2.

2.1 The distribution of capital income

We begin by employing the dataset on Distributional National Accounts for Italy constructed by Guzzardi et al. (2023). This dataset comprises micro-data on personal income and wealth distributions which are constructed by combining various sources, including surveys, national accounts, and external administrative data from 2004 to 2015. More specifically, in Guzzardi et al. (2023), the net wealth distribution is calculated using wealth distribution data from Acciari et al. (2024), but the decomposition across wealth categories is performed using the wealth composition present in the Survey on Household Income and Wealth (SHIW) dataset, which is subsequently employed to allocate capital income at the personal level.

In this work, we improve the estimation of the capital income distribution by aligning it with administrative data on wealth. More specifically, we use the official wealth composition from the Distributional Wealth Accounts (DWA), released by the Bank of Italy (Neri et al., 2024), which provide data starting from 2010. The DWA data, introduced in 2024 under the guidance of the European Central Bank, represent the first official estimates of household wealth distribution in Italy, fully aligned with the aggregate data on total household wealth regularly published by central banks.[4] DWA data are built by combining national accounts aggregates from balance sheets with harmonized European surveys on household finances, which incorporates Bank of Italy's SHIW. This represents a significant improvement, as previous wealth distribution data in most countries relied solely on surveys conducted by central banks (e.g., the Italian survey SHIW and the European Household Finance and Consump-

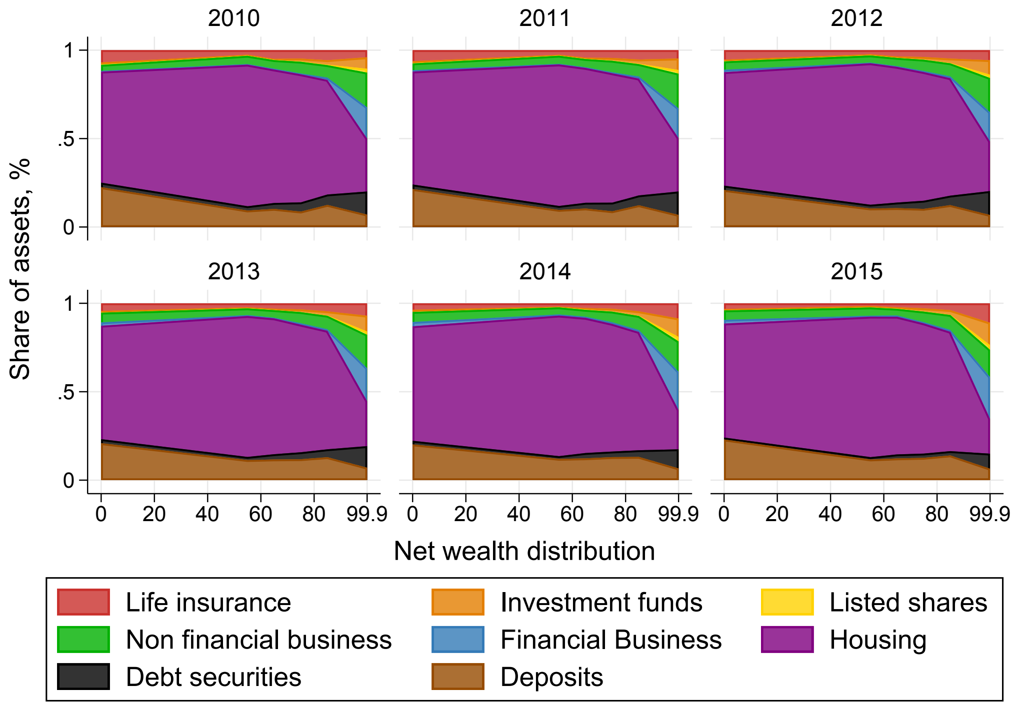
[4] Previously, central banks released only aggregated data on household wealth, including financial assets (such as investments and deposits), real estate assets, and liabilities (like mortgages). Starting in early 2024, the DWA will provide quarterly data on the distribution of these assets among households.

tion Survey, HFCS) which not only struggled to accurately capture the wealthiest segments of the population, but also failed to align with the total aggregates reported in national accounts. This well-known bias in survey data, arising from the under-representation and unit non-response of the wealthiest, has usually been addressed in the literature through external sources, such as rich lists and tax evasion leaks, to estimate the parameters of the Pareto distribution and correct wealth distribution at the top (Waltl and Chakraborty, 2022; Waltl, 2022). However, these methods depend on data with limited reliability and availability, restricted to certain countries or periods. In contrast, the new DWA data, provided by Central Banks for all European countries, offer a more comprehensive and systematic approach that ensures broader coverage and more consistency, representing a significant advancement in the accuracy of wealth distribution analysis across Europe.

Our methodology for estimating income distribution follows Guzzardi et al. (2023) for all income sources with one key exception: capital income categories are allocated at the individual level based on the wealth distribution of corresponding asset classes from the DWA. To illustrate this, Table A.1 in Appendix A details the wealth categories used for distributing capital income according to the distribution of corresponding asset classes. Furthermore, Figure 1 provides a visual representation of the wealth composition found in the DWA showing a significant change around the 90th percentile, where the concentration of business and investment assets, as well as debt securities, increases markedly at the top of the distribution. In contrast, the bottom 90% primarily hold housing and deposits. Once we obtain the capital income distribution, we can calculate the implied rates of return by dividing capital income by total net wealth. The results for both returns and income distribution will be discussed in Section 3.1.

This methodology, which refines estimates of capital income distribution and rates of return by utilizing newly released official wealth categories data, has broader applicability beyond Italy. In fact, the literature has already produced Distributional National Accounts estimates for over twenty European countries (Blanchet et al., 2022; Bruil, 2023), and by applying our approach, these estimates can be made consistent with Distributional Wealth Accounts, ensuring a more accurate distribution of capital income.

Figure 1: Italian wealth composition from Distributional Wealth Accounts



Note: Data provided by the Bank of Italy are aggregated for the bottom 50% and segmented into deciles for wealthier individuals. Using the original data shown in Figure A.8 in Appendix A, we employ linear interpolation to retrieve estimates at the percentile level.

2.2 Optimal income taxation

In this Section, we introduce the optimal taxation framework used to examine the effects of various tax regimes on progressivity. To carry out this analysis, we estimate the model using Italian income distribution data, which we have constructed following the methodology outlined in Section 2.1.

We focus on the framework developed by Saez and Stantcheva (2018) as it offers four key elements of flexibility. First, it enables the derivation of closed-form optimal capital and labor income tax formulas. Second, the generalized social marginal welfare weights introduce an important degree of freedom in incorporating the policymaker's objectives (Saez and Stantcheva, 2016) by allowing to consider the widest possible ranges of social preferences. Third, by integrating preferences for wealth into the utility function—such as bequest motives or entrepreneurial incentives (Carroll, 1998)—the Saez and Stantcheva (2018) model accounts for more realistic and finite reactions to capital taxation. Fourth, both the model and the calibration of social marginal welfare weights are adaptable to accommodate heterogeneous rates of return on wealth, which we aim to consider as one of the key issues intertwined with the modern literature on capital taxation.

In the following Section 2.2.1, we briefly describe the optimal taxation framework we use. Then, in Section 2.2.2, we outline our choices regarding the calibration of the model based on our data.

2.2.1 Optimal tax formulas

The key equation for our analysis is the optimal marginal tax rate formula for capital income $T'_{RK}(rk)$,[5] as derived by Saez and Stantcheva (2018), for a non-linear income tax system that is separable in labor L and capital income RK, as shown in Equation 1:

$$T'_{RK}(rk) = \frac{1 - \bar{G}_{RK}(rk)}{1 - \bar{G}_{RK}(rk) + \alpha_{RK}(rk) \cdot e_{RK}}, \tag{1}$$

where the elasticity parameter e_{RK} represents the behavioral response of the tax base to changes in the tax rate; the local Pareto parameter α_{RK}, represents the shape of the tax base distribution; $\bar{G}_{RK}(rk)$ captures the average relative welfare weights, which reflect the policymaker's concern for redistributing capital income from individuals earning more than rk to those earning less. Note also that Equation 1 assumes that the distribution of incomes can be locally approximated by a Pareto distribution (Atkinson et al., 2011).

In addition to deriving the optimal marginal tax rate on capital income, we also calculate the optimal marginal tax rate on labor $T'_L(l)$ (Equation 2), as well as a comprehensive income tax system, in which total labor income L and capital income RK are taxed jointly under a single optimal marginal income tax rate $T'_Y(y)$ on total income $Y = L + RK$, as shown in Equation 3:

$$T'_L(l) = \frac{1 - \bar{G}_L(l)}{1 - \bar{G}_L(l) + \alpha_L(l) \cdot e_L} \tag{2}$$

$$T'_Y(y) = \frac{1 - \bar{G}_Y(y)}{1 - \bar{G}_Y(y) + \alpha_Y(y) \cdot e_Y} \tag{3}$$

where, as explained for Equation 1, e_L and e_Y are the elasticity parameters for labor and total income, α_L, and α_Y are the local Pareto parameter for labor and total

[5] Note that we denote income categories in uppercase (e.g., RK), while lowercase letters refer to levels within the respective income category (e.g., rk).

income, and $\bar{G}_L(l)$, and $\bar{G}_Y(y)$ are the average relative welfare weights. Equation 3 corresponds to a scenario where the current personal income tax base includes income from all sources, including investments proceeds.

To account for varying levels of redistribution preferences of the legislator, we implement optimal marginal tax rates on each income type $T'_Z(z)$ (where Z is either labor L, capital RK, or total income Y) as in Equation 4:

$$T'_Z(z) = \frac{1 - c \cdot \bar{G}_Z(z)}{1 - c \cdot \bar{G}_Z(z) + \alpha_Z(z) \cdot e_Z} \tag{4}$$

where $\bar{G}_Z(z)$, $\alpha_Z(z)$, and e_Z represent the average relative welfare weights, the Pareto parameter, and the elasticity value, respectively, as explained for Equation 1. Finally, c is a constant reflecting the policymaker's concern for redistribution. A higher value of c indicates a stronger focus on fairness in the tax system: increasing c thus represents greater redistributive concerns of the policymaker, leading to more progressive tax schedules.

2.2.2 Model calibration

To determine the optimal marginal tax rates described in Section 2.2.1, we need to obtain values for all the four key elements of the general optimal taxation formula in Equation 4: i) the constant c reflecting the policymaker's concern for redistribution, ii) the elasticity parameters e, iii) the local Pareto parameter α, iv) the average relative welfare weights $\bar{G}$.

Let us first consider the values of the constant c. We simulate tax schedules using a range of plausible c values, from $c = 0$, indicating minimal concern for redistribution, to $c = 10,000$, reflecting an extreme concern for redistribution, which could even result in negative tax rates for very low income brackets. The benchmark results presented in the next sections use an average value of $c = 5,000$. In Appendix A, we provides results for the full range of c values demonstrating the robustness of our results to the choice of c (cf. Figures A.2-A.5).

As far as the elasticity e is concerned, we need country-specific estimates for labor income (e_L), capital income (e_{RK}), and total income (e_Y). Unfortunately, to the best of our knowledge, country-level estimates for Italy are absent in the literature. Therefore, we present our benchmark results using a range of behavioral elasticity values that align with available estimates for other countries (Saez et al., 2012; Advani and Tarrant, 2021). Specifically, we use a low elasticity level of $e = 0.2$ for labor income (L), a medium elasticity level of $e = 0.3$ for total income (Y), and a high elasticity value of $e = 0.4$ for capital income (RK). In addition to this benchmark scenario, Figure A.1 in Appendix A presents final estimates for labor income, capital income, and total income across all three elasticity levels.

We directly estimate the local Pareto parameter from the Italian income distribution data, which we constructed using the methodology described in Section 2.1. The parameter is calculated separately for capital income (α_{RK}), labor income (α_L), and total income (α_Y) by computing the ratio between the average income at percentile i and the average income above percentile i. Using this method, we fix the constant Pareto parameters beyond the point where the Italian tax system has been found to be regressive (Guzzardi et al., 2023), namely 1.62 for capital income, 2.65 for labor income, and 2.01 for total income. Since our analysis focuses on the top of the income distribution, we use these values to estimate the optimal tax formulas.

Finally, we need to estimate the average relative welfare weights for all sources of income: $\bar{G}_{RK}(rk)$ for capital income, $\bar{G}_L(l)$ for labor income, and $\bar{G}_Y(y)$ for total income. As these weights reflect the policymaker's concern for redistributing income from individuals earning more to those earning less than each considered income level, they can be calibrated along the continuum of each income type's distribution and computed separately for each income tax schedule, based on the respective existing income distribution.

In order to include heterogeneous rates of return on wealth in our analysis, we extend the work of Saez and Stantcheva (2018) by calibrating the average relative welfare weights $\bar{G}$ under the assumption that the legislator is concerned with redistributing capital income by accounting for both inequality on the wealth K and on the returns R dimensions. For this reason, the definition of the average relative welfare weights on capital income $\bar{G}_{RK}(rk)$ is computed as a combination of the average relative welfare weights based on the rates of return $\bar{G}_R(r)$ and the wealth $\bar{G}_K(k)$ distributions, as shown in Equation 5:

$$\bar{G}_{RK}(rk) = \frac{(1 - H_R(r))\,(1 - H_K(k))}{1 - H_{RK}(rk)}\bar{G}_R(r)\bar{G}_K(k), \tag{5}$$

where $H_R(r)$, $H_K(k)$, and $H_{RK}(rk)$ represent the cumulative density of individuals with a specific value of the rates of return R, wealth K, and capital income RK, respectively.

Following Saez and Stantcheva (2018), we define the average relative welfare weights on labor L, wealth K, and returns R as in Equation 6, 7, and 8, respectively:

$$\bar{G}_L(l) = \frac{\int_{i \text{ s.t.: } l_i > l} g_{i,L} \, di}{P(l_i \geq l)} \tag{6}$$

$$\bar{G}_R(r) = \frac{\int_{i \text{ s.t.: } r_i > r} g_{i,R} \, di}{P(r_i \geq r)} \tag{7}$$

$$\bar{G}_K(k) = \frac{\int_{i \text{ s.t.: } k_i > k} g_{i,K} \, di}{P(k_i \geq k)} \tag{8}$$

where the g_i are the generalized social marginal welfare weights for labor L, rates of return R, and wealth K, calculated separately on each distribution; $P(l_i \geq l)$, $P(r_i \geq r)$, and $P(k_i \geq k)$ represent the shares of the population with labor l_i, rates of return r_i, or wealth k_i, greater than l, r, or k, respectively. Our approach to calculating the social marginal welfare weights g_i follows the method in Saez and Stantcheva (2018), where redistributive preferences are inferred as the inverse of after-tax income levels across the distribution. This choice embeds two crucial elements in policymakers' preferences. First, the weights are decreasing along each income type's distribution, thus embedding positive preferences for redistribution in the policymaker's objectives. Second, the weight on every income level is inversely proportional to the *theoretical* tax rate that is currently applied on that income type at that level. This means that the higher the current income tax rate at each level, the greater the policymaker's willingness to redistribute from above to below that income level. We then accordingly derive the legislators' preferences for redistribution from the current Italian income tax system (see Table A.4 in Appendix A for the values used in the calculations). Specifically, on the separate distributions of labor, rates of return and wealth, the generalized social marginal welfare weights g_i are computed respectively as in Equation 9, 10, and 11:

$$g_{i,L} = \frac{1}{l_i \tau_{i,l}} \tag{9}$$

$$g_{i,R} = \frac{1}{\sum_j r_{i,j} \cdot \tau_{rk_{i,j}}} \tag{10}$$

$$g_{i,K} = \frac{1}{\sum_j k_{i,j} \cdot \tau_{rk_{i,j}}} \tag{11}$$

where $\tau_{i,l}$ is the tax rate applied to each level of labor income l_i according to the Italian income tax system, and $\tau_{rk,j}$ represents the current statutory tax rate applied to each of the j sources of capital income $rk_{i,j}$ in the Italian tax system.

Finally, we calculate the average relative welfare weights for total income, $\bar{G}_Y(y)$ according to Equation 12:

$$\bar{G_Y}(y) = \frac{\int\limits_{i \text{ s.t.: } y_i > y} g_i \, di}{P(y_i \geq y)} \tag{12}$$

where $P(y_i \geq y)$ represents the share of the population with total income y_i greater than y and the generalized social marginal welfare weights g_i are calculated as a weighted average of labor income and capital income. More specifically, the g_i are obtained from Equation 13:

$$g_{i,Y} = \frac{1}{\lambda_i \cdot l_i \tau_{i,l} + (1 - \lambda_i) \cdot \sum\limits_j rk_{i,j} \tau_{rk,j}} \tag{13}$$

where λ_i represents the share of labor income for percentile i. The denominator thus represents the total incidence of statutory taxation on income, including both the portion taxed as labor income and the portion taxed as capital income.

3 Results

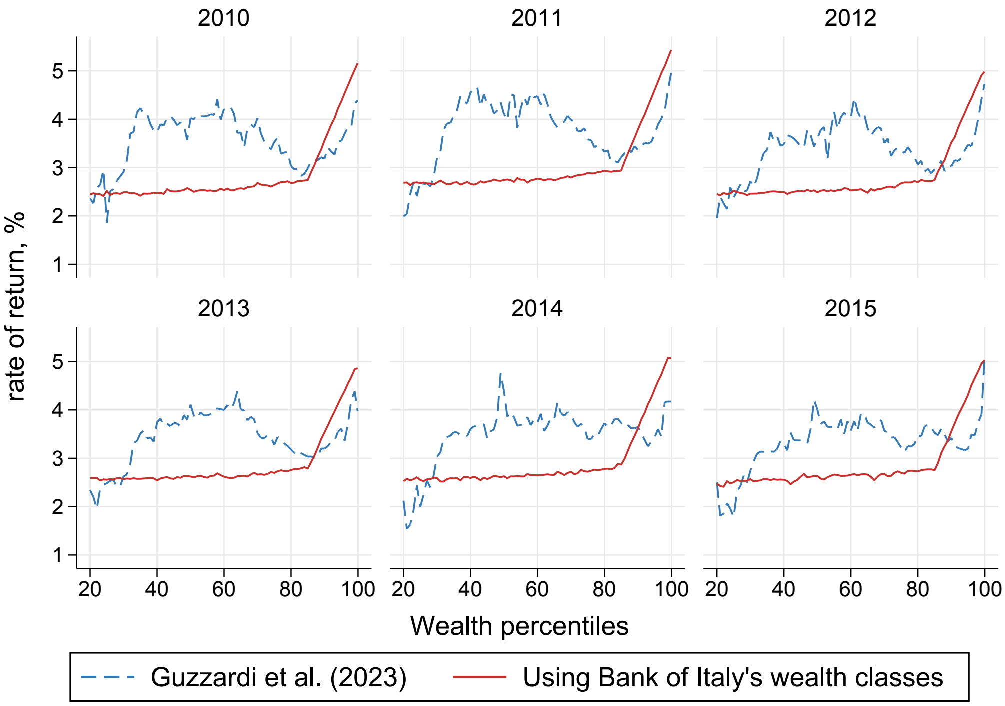
In this Section we present the main results of this work. First, we estimate an improved distribution of capital income in Italy and show its implications in terms of heterogeneity of returns to wealth and income inequality estimates (Section 3.1). Second, we perform a battery of simulation exercises to assess how progressivity can be restored at the top of the income distribution (Section 3.2). Third, employing the optimal taxation framework, we test the implications in terms of implied progressivity, redistribution and revenue potential of different taxation schemes (Section 3.3). Finally, we discuss the implications of our optimal tax analysis in terms of wealth taxation (Section 3.4).

3.1 New estimates of returns, income distribution, and effective tax rates for Italy

We estimate the implied rates of return across Italian wealth percentiles when capital income is distributed as in Guzzardi et al. (2023), as well as when capital income is distributed following the wealth composition obtained from the official DWA released by the Bank of Italy (Neri et al., 2024) as described in Section 2.1. Our analysis reveals that using this more detailed wealth composition at the percentile level implies a larger degree of returns heterogeneity in every available year (Figure 2). Indeed, while the bottom 90% earns returns on wealth between 2% and 3%, the very top of the wealth distribution achieves returns that peak at 5%. This novel result on such large heterogeneity of rates of return arises entirely from the wealth composition retrieved from the DWA. Indeed, from Figure 1 it is evident that wealthier individuals tend to hold a larger share of their wealth in assets with higher returns, such as financial assets, as opposed to housing or deposits, which typically earn lower interest rates and are more common at the bottom of the wealth distribution. In contrast, the original data from Guzzardi et al. (2023), which used a different wealth composition (i.e., the one in SHIW data), resulted in an overestimation of the rates of return among the middle part of the wealth distribution, specifically from the 30th to the 90th percentile. Our novel results on rates of return are also more aligned with evidence from other countries where individual-level administrative data are available, such as Norway (Fagereng et al., 2020; Iacono and Palagi, 2023) and Sweden (Bach et al., 2020).

These refined rates of return also influence the overall level of income concentration through the new distribution of capital income. In Figure 3, we present our benchmark income series—the pre-tax national income concentration series—from both the work of Guzzardi et al. (2023) and our new estimates, which use this refined distribution of capital income. Our findings show that using the updated wealth distribution from the DWA leads to higher income shares for both the middle 40% and the top income groups, while the bottom 50% experiences a reduction in income shares. This stems from the higher concentration of the most remunerative assets at the top of the wealth and income distribution. Despite these changes in the levels of income concentration, the trends for all income groups remain consistent, indicating that the new wealth distribution affects the level of capital income held by different groups, but not their dynamics over time.

Figure 2: New estimates of rates of return



Regarding the progressivity of the Italian tax system, the main results of Guzzardi et al. (2023) remain largely unchanged with two main exceptions: i) the regressivity at the very top begins at the 93rd percentile instead of at the 95th; ii) a lower effective tax rate for the top 0.1%, which falls to 32.5% from 36% (see Figure A.6 and Figure A.7 in Appendix A for a comparison with Guzzardi et al., 2023). Both changes arise from the fact that in our new estimates capital income, which is taxed at a low flat rate, is more concentrated at the top of the distribution.

In the following Sections, we explore potential reforms to address the regressivity observed at the top of the income distribution. In Section 3.2, we propose a simple tax rate aimed specifically at eliminating this regressivity. Then, in Section 3.3, we present more refined estimates grounded on the optimal taxation framework discussed in Section 2.2. In both cases, we also consider potential behavioral effects that might alter overall taxable gross income in response to higher taxes, as well as their direct impact on public revenues and redistributive effects. Finally, in Section 3.4, we analyze the corresponding wealth taxation that aligns with the results from the optimal income taxation framework.

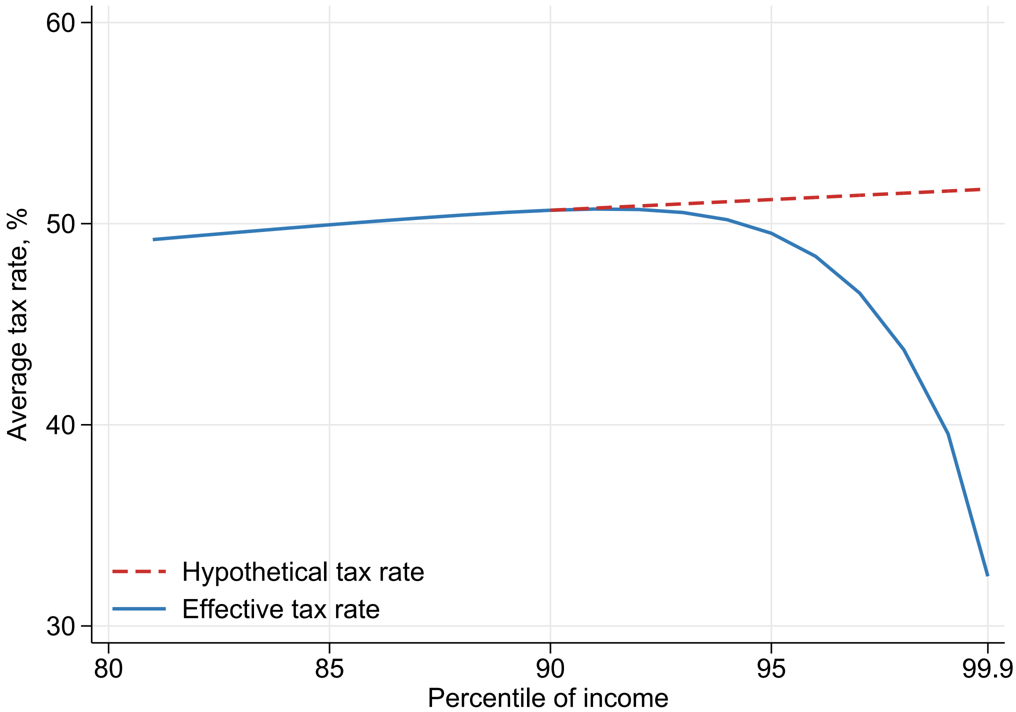
Figure 3: New estimates of income concentration

3.2 Restoring tax progressivity: simulation scenarios

We start with a battery of simulation exercises to determine the minimum effective tax rates required to address regressivity at the top of the Italian income distribution. More specifically, we extrapolate the effective tax rate of the last percentiles before regressivity begins. This approach implies mildly progressive tax rates for the top 10%, with an effective tax rate of 51.7% for the top 0.1%. This rate significantly exceeds the 36% estimated in Guzzardi et al. (2023) and the updated 32.5% rate we estimated using the new capital income distribution (cf. Figure 4).

Assuming that the higher simulated tax rate applies only to the top 7% of the Italian income distribution, we calculate the overall budget increase for the government resulting from such a reform. Government revenues might increase directly due to the higher tax rates at the top. However, accurately estimating changes in public revenues requires using different elasticity values that account for the behavioral responses of individuals at the top subject to higher tax rates, as they could work less, invest less, or engage in tax evasion, thus leading to a reduction in their gross taxable income. In turns, such a fall in gross taxable income may eventually lead

Figure 4: Hypothetical tax rate required to correct the regressivity of the Italian tax system at the top; linear extrapolation.



to lower government revenues even with higher tax rates. Ideally, one would calculate elasticity values specific to the country and income level, but such estimates are not available for Italy. Therefore, in line with the approach followed by Saez and Stantcheva (2018) for the U.S., we consider three different scenarios by assuming three different elasticities of income with respect to the net-of-tax rate: a low level of behavioral response with an elasticity of 0.2, a high level with an elasticity of 0.4, and a very high level with an elasticity of 0.6. This range is chosen according to the available estimates for other countries (Saez et al., 2012; Advani and Tarrant, 2021) and represents a plausible range for the elasticity parameter.

Table 1 presents the results of our calculations for the additional public revenues gain under the three scenarios. It also includes the Reynolds and Smolensky (1977) index and the Kakwani (1977) index, which are used to assess the potential impact on post-tax inequality and the progressivity of the tax system, respectively.[6] Our

[6]The Reynolds-Smolensky index (RS) is calculated as the difference between the Gini index of pre-tax income (G_Y) and the concentration coefficient of the post-tax income distribution (C_{Y-T}): $RS = G_Y - C_{Y-T}$. The Kakwani index (Kak) is computed as the difference between the concentration index of the tax burden (C_T) and the Gini coefficient of pre-tax income (G_Y): $Kak = C_T - G_Y$.

Table 1: Change in public revenue and inequality indexes under different behavioral response

Elasticity	e	*Change in public revenue*	*Change in Reynolds-Smolensky index*	*Change in Kakwani index*
Low	0.2	+4.23%	+0.02018	+0.02111
High	0.4	+3.35%	+0.02014	+0.02109
Very High	0.6	+2.48%	+0.02009	+0.02108

findings show that with a low behavioral response, the budget increases by +4.23%. The improvement in tax revenues is still positive in the scenarios with high and very high behavioural response for individuals in the top 7%: the tax receipts increases by +3.35% in the first case, while by +2.48% in the second one, which is characterized by the highest reduction in taxable gross income. Such results show that the current empirical effective tax rate in Italy is so low that higher tax rates at the top are always beneficial for public revenues. The positive values of the Reynolds-Smolensky and Kakwani indexes in columns 3 and 4 of Table 1 also indicate that, regardless of behavioral responses, post-tax inequality is reduced and the progressivity of the tax system is improved due to the increase in the tax rate at the top. This simple simulation exercise demonstrates that correcting the regressivity of effective tax rates at the top of the income distribution would not only benefit the public revenues but also help reduce inequality, even when a strong behavioral response is assumed.

To achieve the desired effective tax rate, several options are available. One approach is to increase both labor and capital income tax rates at the top end of the income distribution. Alternatively, we could transition from the current system—where capital and labor income are taxed separately—to a comprehensive tax system where all types of income are combined into a single tax base and subject to the same progressive personal income tax. These options will be further explored in Section 3.3, where we present the results using the optimal taxation framework outlined in Section 2.2. However, as Piketty et al. (2023) points out (and as highlighted by the ProPublica leak, Eisinger et al., 2021), wealthy individuals can easily shift their income between labor and capital to benefit from lower tax rates or even avoid earning income altogether by relying solely on their wealth. To address this possible tax avoidance and income manipulation strategies, Piketty et al. (2023) suggest to

A tax is considered progressive when $Kak > 0$. Further details can be found in Enami et al. (2017). For recent applications, see Splinter (2020) on the U.S. and Dicarlo et al. (2023) on the Italian income taxation system.

implement a wealth tax targeting high-net-worth individuals.

Accordingly, if a wealth tax was introduced in Italy to close the gap between current tax rates and the tax rate needed to eliminate regressivity, it would require a minimum effective wealth tax rate of 0.52% for individuals with net wealth over €450,000, 0.94% for those with over €1 million, and 1.35% for those with over €1.5 million (see Table 2 column 2). Various options are available to achieve these effective tax rates. In line with the progressive wealth tax proposed by Landais et al. (2020), we consider three brackets: a marginal tax rate of 1.5% for net wealth above €450,000, 2% for net wealth above €1 million, and 2.5% for net wealth above €1.5 million. Table 2 presents the results in terms of effective tax rates, assuming a high level of elasticity with respect to net wealth (see Appendix A, Tables A.3 and A.2 for low, and very high elasticity levels). Our findings show that for the first bracket ($>$ €450,000), the effective tax rate would be 0.38%; for the second bracket ($>$ €1000,000), it would be 1.01%; for the third bracket ($>$€1.5 million), the effective rate would be 1.93%. This shows that such a progressive wealth tax closely aligns with the minimum effective tax rates needed to eliminate regressivity.

A possible common argument against introducing a wealth tax is the potential liquidity constraints that taxpayers may face when paying such taxes (for a review, see Guzzardi et al., 2023). To address this concern, Table 2, columns 5 and 6, assesses the actual liquidity issues faced by these individuals. It shows the share of "highly liquid assets"—defined as listed shares, life insurance, debt securities, deposits, and investment funds—and "total financial assets", which include both highly liquid assets and unlisted shares, in their total net wealth. The data reveal that the liquid financial assets held by these individuals comprise between 54% and 65% of their net wealth. Even excluding unlisted shares, the proportion of highly liquid assets is still high, ranging from 37% to 42% of their net wealth. If the wealth tax were to be paid by selling part of these highly liquid assets, the effective tax rates on such assets would be 1.03% for those at the lowest threshold, 2.55% for individuals with over €1 million, and 4.63% for those with over €1.5 million in net wealth.

3.3 Restoring tax progressivity: an optimal taxation approach

The previous section already provides intuitive evidence of the redistributive potential of policies aimed at increasing progressivity at the top. Although the exercises in that section account for potential behavioral changes in the tax base, they entail neither

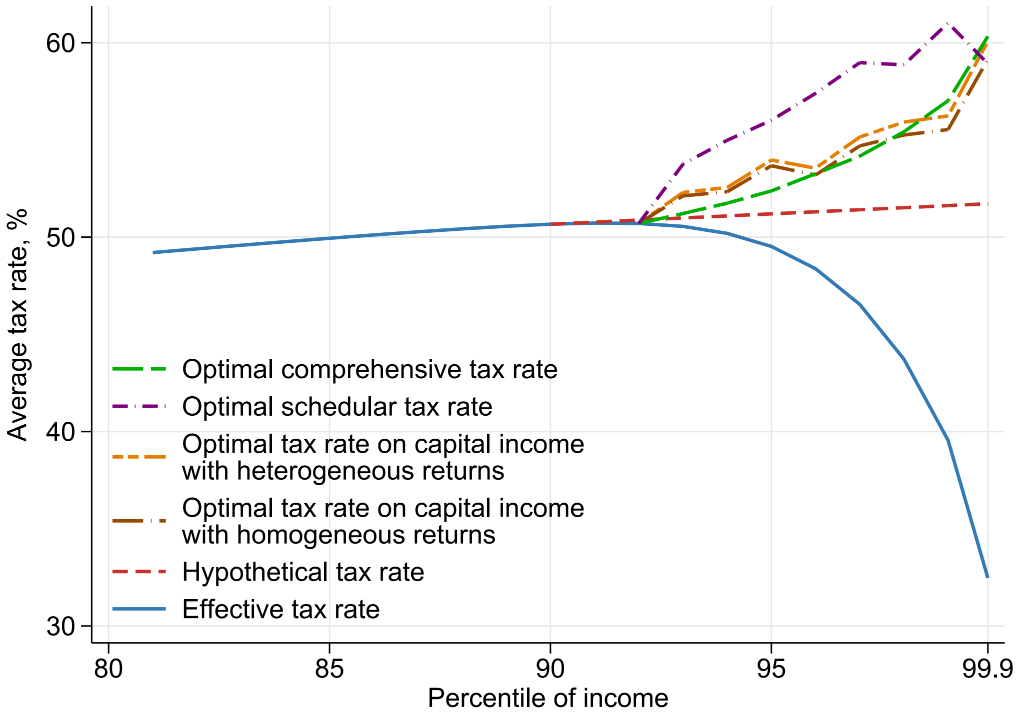
Table 2: Wealth tax rates in Italy with high behavioral response

Net wealth threshold Euro €	*Minimum effective wealth tax*	*Marginal tax rate*	*Effective tax rate*	*Share of highly liquid assets*	*Share of total financial assets*
€450,000	0.52%	1.5%	0.38%	37%	54%
€1,000,000	0.94%	2%	1.01%	40%	60%
€1,500,000	1.35%	2.5%	1.93%	42%	65%

preferences for redistribution of the policymaker nor efficiency considerations from the individual perspective. To address such issues, building on Saez and Stantcheva (2018), we employ an optimal taxation model calibrated on the Italian income distribution and income composition (see Section 2.2 for methodological details). In the following, we present the estimated effective tax rates under four simulation scenarios from the optimal taxation model: i) the optimal comprehensive tax rate, where all income sources are taxed under a single optimal income tax rate; (ii) the optimal schedular tax rate, where labor and capital incomes are taxed at their respective optimal tax rates; (iii) the optimal tax rate on capital income with heterogeneous rates of return, where only capital income is taxed at its optimal tax rate with heterogeneous returns on capital; and (iv) the optimal tax rate on capital income with homogeneous rates of return, where capital income is taxed at its optimal tax rate with homogeneous returns on capital. The estimated effective tax rates under the four scenarios are reported in Figure 5, together with the hypothetical tax rate (cf. Section 3.2) and the effective tax rate of the current tax system.

As mentioned above, the optimal comprehensive tax rate scenario considers a tax system where the optimal marginal tax rates are uniformly applied to all incomes without differentiating among different sources. Implementing such a system would require significant structural reform of the Italian tax system, nevertheless it serves as a valuable comparative example. Our results show that applying the optimal top marginal tax rate to the top 7% of the pre-tax national income distribution would yield a much higher effective tax rate than the hypothetical tax rate required to correct the regressivity of the tax system (see Section 3.2). More specifically, the effective tax rate would be approximately 51% at the 93rd percentile and would grow to 60% at the top 0.1% (see Figure 5). Although higher tax rates are applied, behavioral responses may alter individuals' overall taxable income. Assuming an overall elasticity value of 0.3 on total income, Table 3 shows that the change in public revenue is positive, at

Figure 5: Effective tax rates under different optimal taxation scenarios



+5.40%. Additionally, the Reynolds-Smolensky and Kakwani indexes both increase by approximately +0.03, indicating that such a reform would reduce post-tax income inequality and increase tax progressivity (cf. Table 3).

Let us now proceed to analyze the results of the optimal schedular tax rates, where the current tax system is maintained, but the marginal tax rates on labor income and capital income for the top 7% are replaced with optimal marginal tax rates, assuming heterogeneous rates of return on capital income. In this scenario, the behavioral responses to higher taxes on capital income are greater than those on labor income, as we assume that individuals can adjust their capital income more easily than their labor earnings. The elasticity used in modeling the optimal marginal tax rate is 0.2 for labor income and 0.4 for capital income (cf. Section 2.2).[7] The results in Figure 5 show that the overall effective tax rate in this scenario is higher than in the comprehensive case. This is due to two reasons. First, the marginal tax rate on labor income continues to rise throughout the top income distribution due to its

[7] Figure A.1 in Appendix A show the results with different values of elasticities of both labor and capital income. The general conclusions of the analysis hold even assuming high elasticity values for all income categories. Indeed, also in the latter case, the regressivity at the top of the income distribution is corrected if applying optimal marginal tax rates.

Table 3: Change in public revenue and inequality indexes under different optimal tax rates simulations

Simulated optimal tax rate	*Change in public revenue*	*Change in Reynolds-Smolensky index*	*Change in Kakwani index*
Optimal comprehensive tax rate	+5.40%	+0.0299	+0.0300
Optimal schedular tax rate	+7.12%	+0.0388	+0.0374
Optimal tax rate on capital income with het. returns	+5.69%	+0.0311	+0.0310
Optimal tax rate on capital income with hom. returns	+5.47%	+0.0296	+0.0298

Note: In the "Optimal comprehensive tax rate" scenario we set elasticity $e_Y = 0.3$.
In "Optimal schedular tax rate" we set elasticity $e_L = 0.2$ for labor income, and $e_{RK} = 0.4$ for capital income.
In "Optimal tax rate on capital income" with both heterogeneous and homogeneous returns, we set elasticity $e_{RK} = 0.4$.

lower elasticity. Second, the optimal marginal tax rate on capital income is relatively flatter, but it is set at a much higher level compared to the current tax system (i.e., it increases from about 27% to 61% for the top 7% of the income distribution, cf Figure 5). As at the top of the income distribution, individuals earn higher level of capital income, their total effective tax rate increases, leading to greater progressivity in the tax system. Taking into account behavioural responses, the change in public revenues is positive also in this case as well, with an increase of 7.12%, due to the higher taxes paid by individuals at the top of the income distribution, who currently benefit from a regressive tax rate (cf. Table 3). The reform is also able to successfully raise the progressivity of the tax system, thus reducing post-tax income inequality.

In the third simulation scenario, we analyze the impact of modifying only the capital income tax by aligning it with the optimal marginal tax rate on heterogeneous returns for individuals beyond the top 7% of the income distribution. Reforming capital income taxation, though not without its own challenges, can offer a more targeted approach to addressing wealth inequality and improving tax efficiency without directly impacting wages. Moreover, the policymaker might prefer avoiding changes to labor taxation, as these may be more politically sensitive than reforms focused solely on capital income taxation. Simulation results show that even with this sole adjustment, the tax system's regressivity falls, as capital income is highly concentrated at the top. More precisely, after levying an optimal capital income marginal tax rate of 61% on just the top 7%, the overall effective tax rate would constantly rise up to the top 1%, with a sharp increase for the top 0.1%, reaching an effective tax rate of 60% (see Figure 5). Furthermore, this result remains consistent also in our fourth simulation scenario, where we apply optimal marginal tax rates for homogeneous returns on capital,[8] which are slightly lower than heterogeneous ones. In

[8] Note that the scenario with homogeneous returns differs from the one with heterogeneous

both the third and fourth scenarios, the change in public revenues is positive, with an increase of 5.69% when using the optimal marginal tax rate on heterogeneous returns, and an increase of 5.47% when using the optimal marginal tax rate on homogeneous returns (cf. Table 3). In both cases, the progressivity of the tax system increases and the post income inequality falls as shown by the Reynolds-Smolensky and Kakwani indexes.

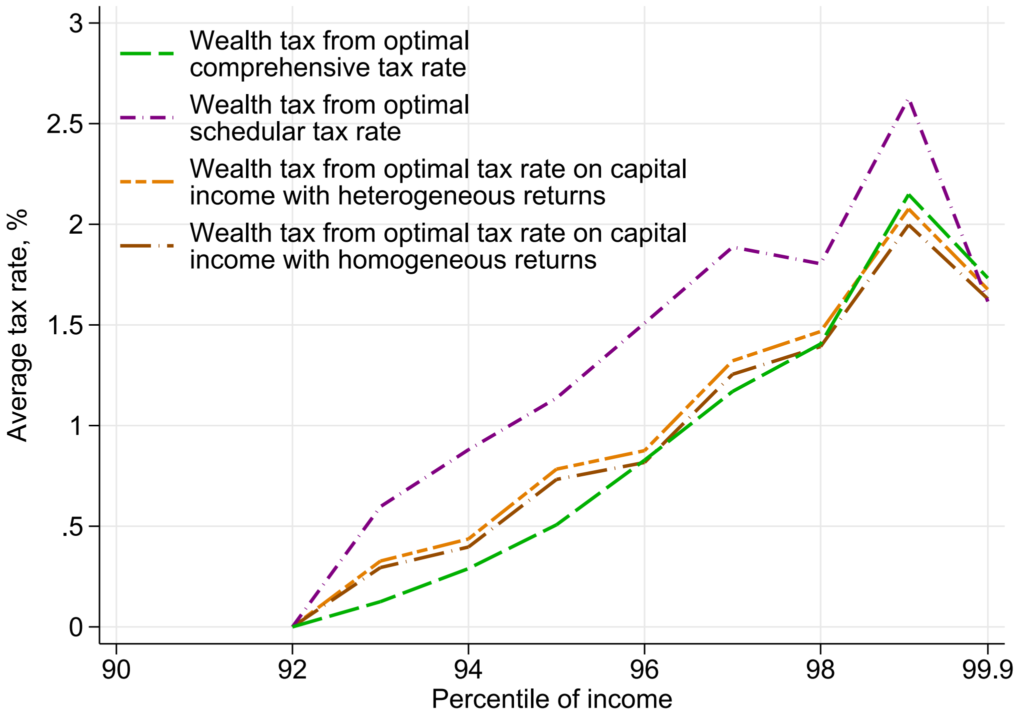
3.4 Equivalent optimal wealth tax

Results from Section 3.3 implies a significant increase of the effective tax rate at the top 7% vis-à-vis that of the current tax system. This surge would boost public revenues, increase the progressivity of the tax system, and reduce post-tax income inequality. Nevertheless, reforming labor and capital income taxation at the top of the income distribution could not necessarily lead to the desired effect, as the richest individuals can more easily avoid taxes through income structuring, shifting, and indefinitely postponing their earnings (Piketty et al., 2023). In such circumstances, a wealth tax can represent a valuable approach to spurring the progressivity of the tax system and ensuring fair contributions from the wealthiest. Being more difficult to manipulate than income, wealth has recently been proposed as a metric to calibrate a minimum standard for global taxation of the wealthiest at the G20 (Zucman, 2024). The report also points out that a broad wealth tax directly targeting the stock of wealth in all its components, can mitigate some of the tax avoidance opportunities inherent in the current system, while also promoting a more equitable distribution of the tax burden.

Given the foregoing discussion, starting from the current Italian tax system, we design and test an equivalent optimal wealth tax that targets only the top 7% of the income distribution and aims to reach the same overall effective tax rate that would be obtained using the optimal tax rates discussed in Section 3.3. The wealth tax rates are thus designed as an additional tax on top of the current tax system that would match the effective tax rates derived from income depicted in Figure 5, and would generate the same additional public revenue as presented presented in Table 3. In order to compute the equivalent optimal wealth tax, we thus derive the amount of additional taxes needed to be paid to reach the optimal effective tax rates in the

returns, as in the former, we eliminate the assumption that the legislator is concerned with return heterogeneity in the optimal taxation model (see Equation 5).

Figure 6: Optimal wealth tax rates implied by the different optimal taxation scenarios



different simulation scenarios and divide it by the total net wealth.

Figure 6 illustrates the equivalent optimal wealth tax in case of the optimal comprehensive tax scenario, the optimal schedular income tax scenario, and the optimal capital income tax scenarios. In the comprehensive income tax, the equivalent wealth tax would start at about 0.3% for the 93rd percentile, corresponding to an average net wealth higher than €450,000, and rise to 1.7% for the top 0.1%, where individuals have an average net wealth above €15 millions. A similar pattern is observed with the optimal capital income taxes with both heterogeneous and homogeneous rates of return. As expected from Section 3.3, if the policymaker aim to achieve the optimal schedular income tax rate, the equivalent wealth tax needs to be slightly higher than the other cases, ranging from 0.6% for the 93rd percentile to 1.7% for the top 0.1% of the income distribution. Note that such wealth tax rates are relatively modest when compared to the share of highly liquid assets outlined in Table 2. This means that taxpayers would generally be able to cover these tax payments either from their regular income or, if necessary, by liquidating a small portion of their wealth.

Our results for the Italian tax system are consistent with several proposals for progressive wealth taxation at the European level.[9] For instance, Piketty (2014) suggests a tax schedule of 1% on fortunes between €1 and €5 million, 2% above €5 million, and potentially up to 5–10% on fortunes exceeding €1 billion. Similarly, Landais et al. (2020) advocated for a progressive wealth tax across the European Union which involves applying a 1% tax on the top 1% of the wealth distribution, with an additional 1% on the top 0.1% and another 1% on the top 0.01%. Furthermore, our results are in line with the estimates from Advani and Tarrant (2021) for the UK, who studied the potential revenue effects of a 0.17% wealth tax on individuals with a net worth exceeding £500,000.

4 Discussion on policy design and implementation

In the literature, the difference between optimal taxation and tax reforms is quite clear. Optimal tax design involves the selection of an optimal tax structure, subject to constraints on revenue, tax instruments and the behavior of economic agents; initial conditions are irrelevant. In contrast, the theory of optimal tax reforms considers the problem of reforming an existing tax system, as it focuses on the best way to move from an initially suboptimal equilibrium toward the tax design optimum (Zodrow, 1992). In line with the latter theory, we first consider a gradual optimal tax reform (cf. Section 4.1) and then we discuss the possible administrative and policy constraints (cf. Section 4.2)

4.1 Gradual optimal tax reform

In the previous section we have calculated optimal tax rates using the approach proposed by Saez and Stantcheva (2018), abstracting away from initial conditions. However, in our application, the marginal tax rates on capital income would need to rise significantly—from the current 27% to approximately 61% for those in the top 7% of the income distribution. Mechanically, holding a constant elasticity, one could replace a one-shot large change with a series of gradual and small adjustments of rates, each for example of an additional 5%. Each of these changes could be interpreted as consistent with the envelope theorem so that first-order effects on welfare can be ignored.

[9]For a review of the wealth tax rates currently applied across Europe, see Scheuer and Slemrod (2021).

Figure 7: Sequential effective tax rates to reach the optimal tax rates on capital income with heterogeneous returns

In line with this reasoning, in the scenario of optimal tax on capital income with heterogeneous returns, we calculate how the overall effective tax rate evolves if the marginal tax rates on capital income are increased incrementally—by 5 percentage points (pp) at each step, over six consecutive adjustments—eventually reaching the optimal tax rates in a final seventh adjustment. The results are shown in Figure 7, where we see that each step contributes to an increase in the overall effective tax rates. Notably, the tax system loses its regressive characteristics at the top of the distribution only between Step 4 and Step 5, when the marginal capital income tax rate is increased by an additional 20 pp and 25 pp.

Note that a policy reform that produces a series of subsequent changes in the tax rates will have a different effect on public revenues than what is shown in Table 3. This difference arises because each time the tax rate changes, the declared income decreases based on the underlying elasticity value of 0.4, as discussed in Section 3.3. This reduction in declared income will thus affect the estimated change in public revenue. Table 4 illustrates this mechanism by presenting the effects of each step on public revenue, as well as the Reynolds-Smolensky and Kakwani indexes. We find that

Table 4: Change in public revenue and inequality indexes under different tax rates simulations

Simulated tax rate	*Change in public revenue*	*Change in Reynolds-Smolensky index*	*Change in Kakwani index*
Step 1 - plus 5pp on top of current cap. inc. tax rate	+1.27%	+0.0058	+0.0065
Step 2 - plus 5pp on top of Step 1	+1.88%	+0.0102	+0.0112
Step 3 - plus 5pp on top of Step 2	+2.22%	+0.0146	+0.0156
Step 4 - plus 5pp on top of Step 3	+2.27%	+0.0186	+0.0196
Step 5 - plus 5pp on top of Step 4	+2.05%	+0.0221	+0.0230
Step 6 - plus 5pp on top of Step 5	+1.60%	+0.0249	+0.0256
Step 7 - Optimal tax rate on capital income with het. returns	+1.09%	+0.0276	+0.0282

such a reform with incremental changes in the tax rate has still a positive effect on both inequality and public revenue. However, since individuals adjust their income in response to each tax rate change, public revenue peaks at Step 4, resulting in a +2.27% increase in public revenue compared to current revenue. Beyond this point, further tax rate increases lead to diminishing returns in terms of public revenue—though the increases remain positive—with Step 5 already producing a smaller increase of +2.05%.

4.2 Administrative and political constraints

The implementation of the tax reforms we are considering here for Italy, although gradual, would involve changes that are difficult to implement administratively, let alone politically (Boadway, 2012).

On the administrative side, a change in marginal rates on capital income is the simplest one, as it would allow the tax administration to maintain the current withholding system, where taxes on capital incomes are withheld by the financial institution (bank, insurance, company) that distributes these incomes, and they are not reported in the taxpayer's tax declaration. However, even in this case, the financial institution should be able to apply the tax selectively, i.e. only to taxpayers whose income or wealth is above a given threshold. This would entail a major change with respect to existing capital income tax rates, which are withheld uniformly on *all* taxpayers. To rule out easy-to-do avoidance schemes, such as fragmenting wealth between different sources, this would require every financial institution to coordinate with others in order to decide: i) what is the total capital income or wealth of the individual; ii) which institution is withholding the tax. Similar issues would arise with the implementation of a wealth tax.

Implementing an optimal comprehensive tax scheme would be even more complex and costly, as it would require taxpayers to report their capital incomes in the tax declaration and then deduct as a tax credit the amount of tax withheld by financial institutions. Within the modern framework of pre-filled tax declarations (that has been adopted in Italy since 2015), this tax credit should be already inserted in the pre-filled tax declaration, which implies an intense coordination (not only among financial institutions, but) also between financial institutions and the tax administration.

Political constraints are likely to arise, too. The traditional literature on tax reforms has stressed the importance of "losers". Even if the tax reform is implemented gradually, in general its losers will not fail to make their protests well heard by the politicians, which is the reason why "ideal" tax reforms should be Pareto-improving (Salanié, 2002). However, Pareto-improving reforms are impossible as they would require compensation, which is the opposite of the redistribution such reforms are aiming at. Nonetheless, the political problems posed by a reform which clearly hits the richest part of the society cannot be disregarded. In the case of reforms we are considering here for Italy, there is a huge disproportion between the large number of those who would benefit from it, via an increase of public goods or a decrease of other taxes, and the very small number of those who would be damaged. The latter, however, are likely to be very influential on the political process. This influence may leverage on the administrative difficulties described above, and even create more of them, e.g. by calling for the application of a grandfather clause (Zodrow, 1992).

Summing up, the optimal tax calculations in the previous section should be considered as providing a direction for a possible reform to increase the progressivity of the Italian tax system, rather than exact parameter estimates. A credible policy reform might consider an increase of the marginal tax rate of only 5% or 10% (i.e. the first two steps considered above) that would boost revenues and decrease inequality, but it would not be large enough to offset the regressivity at the top. Even this reform, however, would require a large political consensus to counter the easily predictable cry of pain that would arise from the richest part of the population. This confirms that redistribution policies should be implemented along with predistribution policies to attain significant reductions in inequality, as recently suggested in the literature (Bozio et al., 2024).

5 Conclusions

Pivoting on the Distributional National Accounts dataset for Italy, constructed and described in Guzzardi et al. (2023), we employ the newly released Distributional Wealth Accounts from the Bank of Italy (Neri et al., 2024) to distribute capital income components from the National Accounts at the individual level. The enhanced detail in wealth categories, compared to previously available data, allows us to achieve a more precise distribution of capital income and implicit rates of return across the wealth distribution in Italy from 2010 to 2015.

Our results show a significantly higher degree of returns heterogeneity and a more plausible distribution of the rates of return of capital within the Italian household sector. More specifically, the rates of return are weakly increasing around 2.5% within the bottom 90% of the distribution and accelerate significantly within the top 10%, reaching approximately 5%. This finding aligns with the international literature on the topic and represents, to the best of our knowledge, the first attempt to estimate such figures for the Italian economy.

Consequently, we find higher levels of income concentration, with a larger share accruing to both the middle 40% and the top 10% of the distribution, and a smaller share to the bottom 50%. Additionally, the refined income distribution series reveals that effective tax rates in the Italian economy are regressive, beginning from the top 7% of the distribution rather than the top 5%, as previously identified in Guzzardi et al. (2023). This shift is due to the higher share of capital income accruing to the top, resulting in an even lower incidence of capital income taxation at the highest levels.

To enhance our understanding on how to address the regressivity of the Italian tax system, we explore potential income taxation policy reforms through the calibration of the optimal taxation model proposed by Saez and Stantcheva (2018). In this approach, we study a range of possible interventions: a comprehensive optimal tax system that taxes all income sources at the same optimal tax rate; an optimal schedular tax system that taxes labor and capital income separately at their respective optimal tax rates; and a tax system that specifically targets capital income through an optimal capital income tax, assuming either heterogeneous or homogeneous rates of return. All the examined policy reforms assume varying degrees of tax base elasticity to tax rate variations to account for behavioural responses.

All optimal taxation scenarios show that, to tackle the regressivity of the Italian tax system, it is necessary to increase the tax at the top of the income distribution. The effective tax rate for the richest top 0.1% has to rise up to 60% in the comprehensive optimal tax system. We also observe consistent gains for the public budget, ranging from +5.40% to 7.12% under a balanced behavioral response within the optimal taxation framework. Finally, we find positive impacts on post-tax inequality and tax progressivity, as indicated by improvements in the Reynolds-Smolensky index (ranging from +0.03 to +0.039) and the Kakwani index (ranging from +0.03 to +0.037).

Given that the wealthiest individuals can defer income and thus avoid taxation through wealth holdings (Piketty et al., 2023), we explore the feasibility of introducing a wealth tax targeting individuals in the top 7% of the income distribution, that is, with a net wealth exceeding €450,000. We estimate that a wealth tax matching the outcomes of effective optimal income taxation would range from 0.3% for the 93rd percentile to 1.7% for the top 0.1%, where individuals have an average net wealth above €15 million. Notably, these rates align with other proposals in the literature (Piketty, 2014; Landais et al., 2020; Advani and Tarrant, 2021). Using precise net wealth data from the Bank of Italy, we also address concerns about liquidity constraints for individuals subject to this tax.

On policy grounds, our results should be intended as providing a direction for tax reform, indicating that increases in marginal capital income or wealth tax rates at the top of the income distribution would contribute to tackle the regressivity of the Italian tax system, boosting tax revenues and decreasing inequality, even when (second-order) behavioural effects are taken into account. However, the observed inequality at the top of capital income is so large that it cannot be fully addressed by means of implementable redistributive taxation policies.

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Appendix A Further details and robustness

Table A.1: Distributional assumptions for capital income based on wealth categories

Capital Income	*Distributed in proportion of wealth assets*
Rental income	Housing
D41 C-D Interest	Debt securities Deposits Investment funds
D421 C-D Profits distributed by companies	Listed shares
D422 C-D Income withdrawn by members of quasi-corporations	Financial Business (unlisted shares) Non financial business
D423 C-D Other profits distributed by companies	Listed shares
D44 C-D Other investment income	Life insurance Investment funds

Table A.2: Wealth tax rates with very high behavioral response

Net wealth threshold Thousands of €	*Minimum effective wealth tax*	*Marginal tax rate*	*Effective tax rate*	*Share of highly liquid assets*	*Share of total financial assets*
€450	0.51%	1.5%	0.38%	37%	54%
€1,000	0.92%	2%	1.01%	40%	60%
€1,500	1.29%	2.5%	1.93%	42%	65%

Table A.3: Wealth tax rates with low behavioral response

Net wealth threshold Thousands of €	*Minimum effective wealth tax*	*Marginal tax rate*	*Effective tax rate*	*Share of highly liquid assets*	*Share of total financial assets*
€450	0.52%	1.5%	0.38%	37%	54%
€1,000	0.97%	2%	1.01%	40%	60%
€1,500	1.42%	2.5%	1.93%	42%	65%

Table A.4: Tax rates used for calculating the social marginal welfare weights g_i

Labor Income		**Capital Income**		
Income threshold	Tax Rate	Tax rate investments	Tax rate rents	Tax rate undistributed profits
<15,000€	23%	26%	21%	24%
15,000–28,000€	25%	26%	21%	24%
28,000–50,000€	35%	26%	21%	24%
>50,000€	43%	26%	21%	24%

Figure A.1: Optimal effective tax rate with different elasticity values

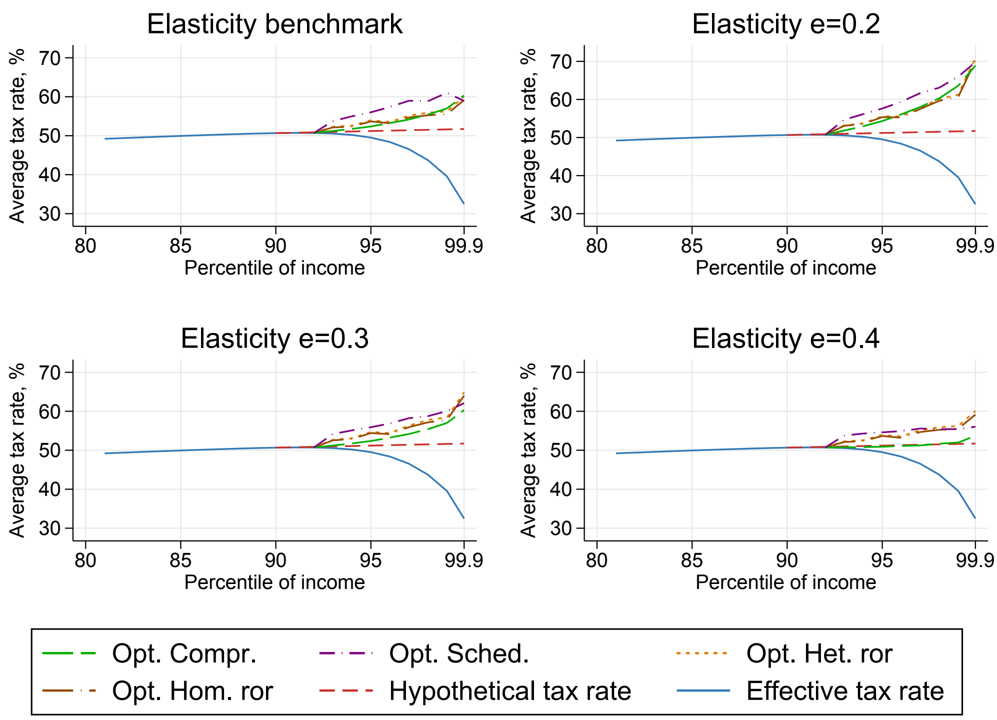

Figure A.2: Optimal effective tax rate with heterogeneous rates of return with varying taste for redistribution c

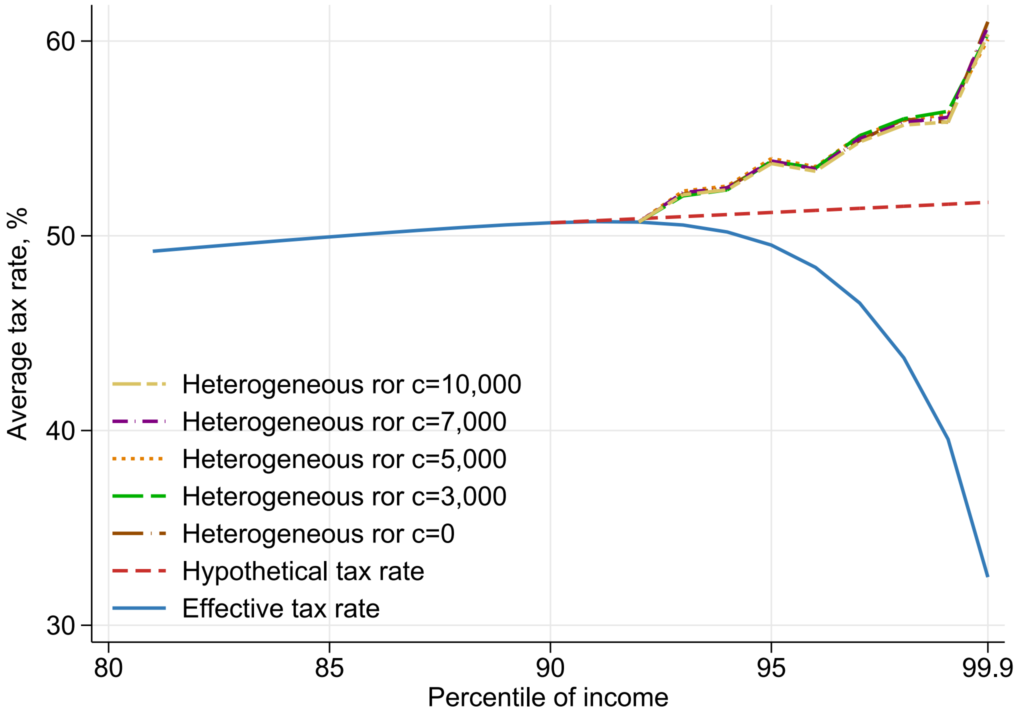

Figure A.3: Optimal effective tax rate with homogeneous rates of return with varying taste for redistribution c

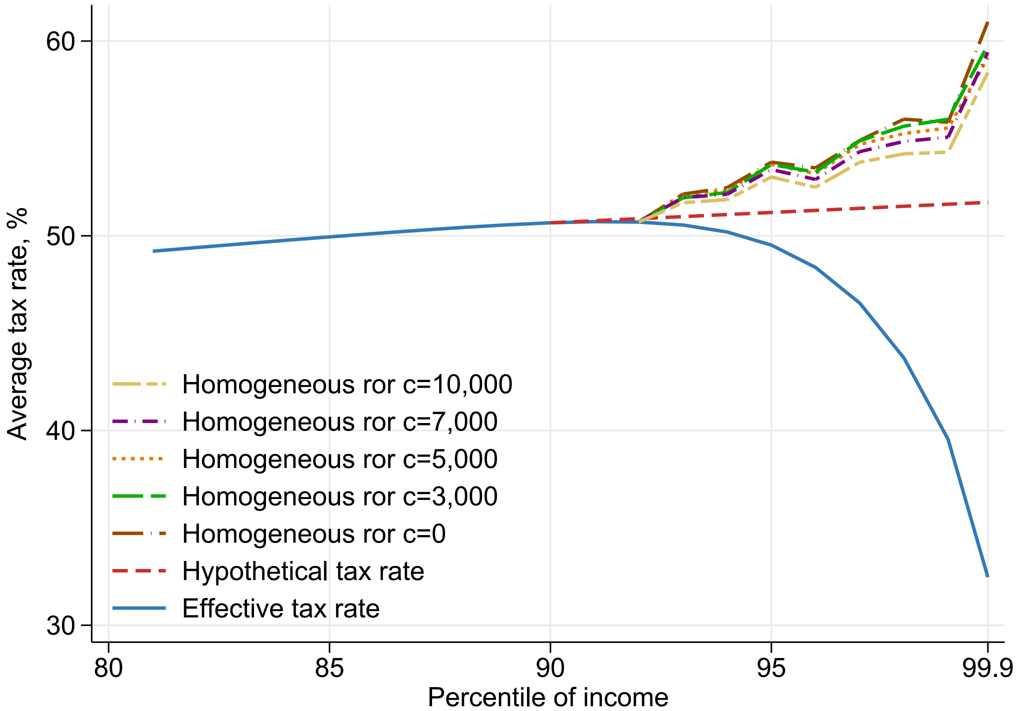

Figure A.4: Optimal effective comprehensive tax rate with varying taste for redistribution c

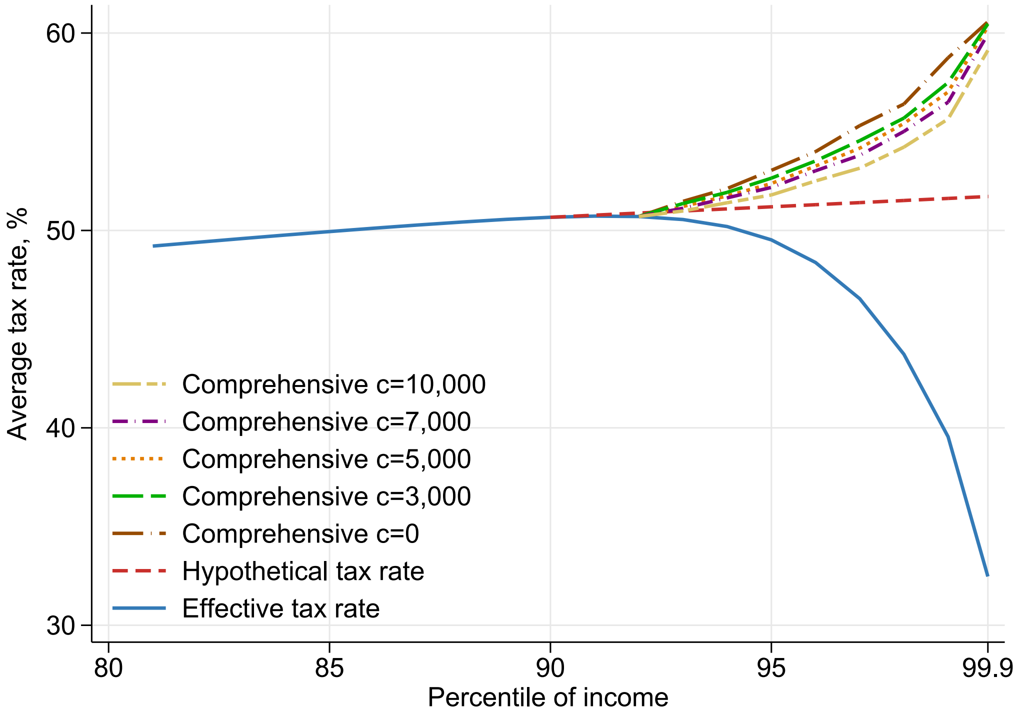

Figure A.5: Optimal effective schedular tax rate with varying taste for redistribution c

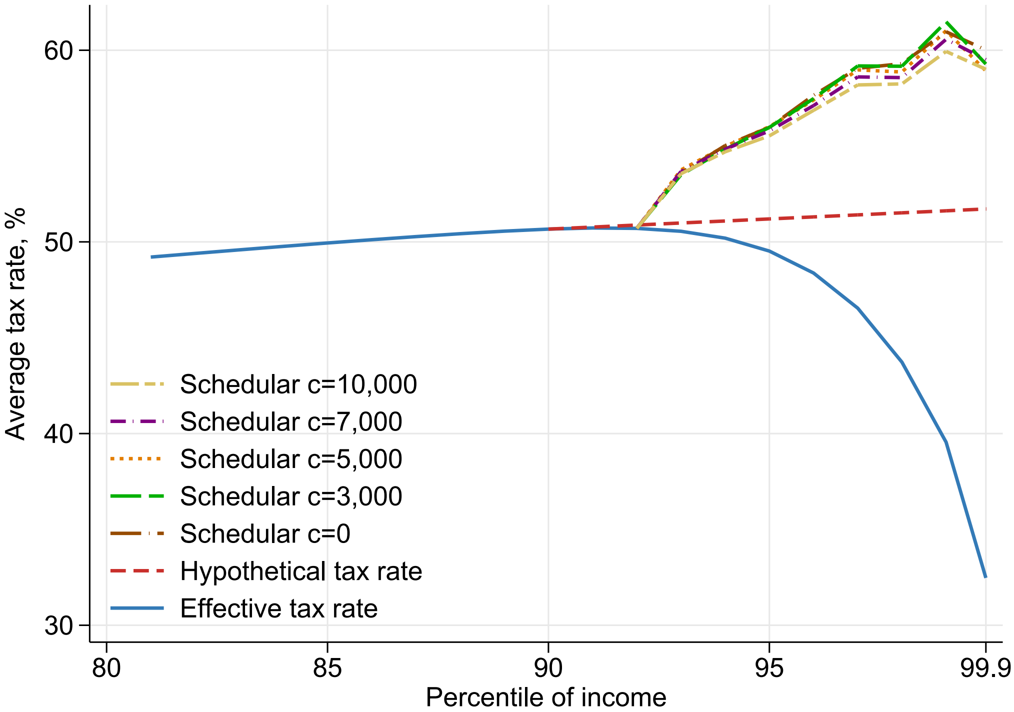

Figure A.6: Progressivity of the tax system in Guzzardi et al. (2023) vs our benchmark

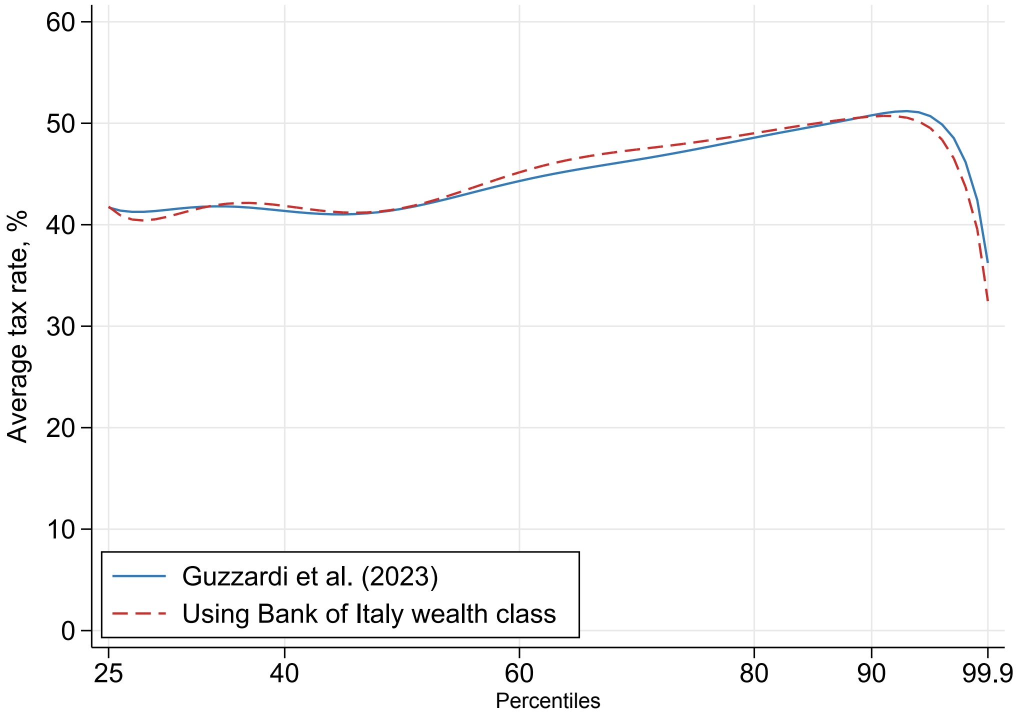

Figure A.7: Progressivity of the tax system

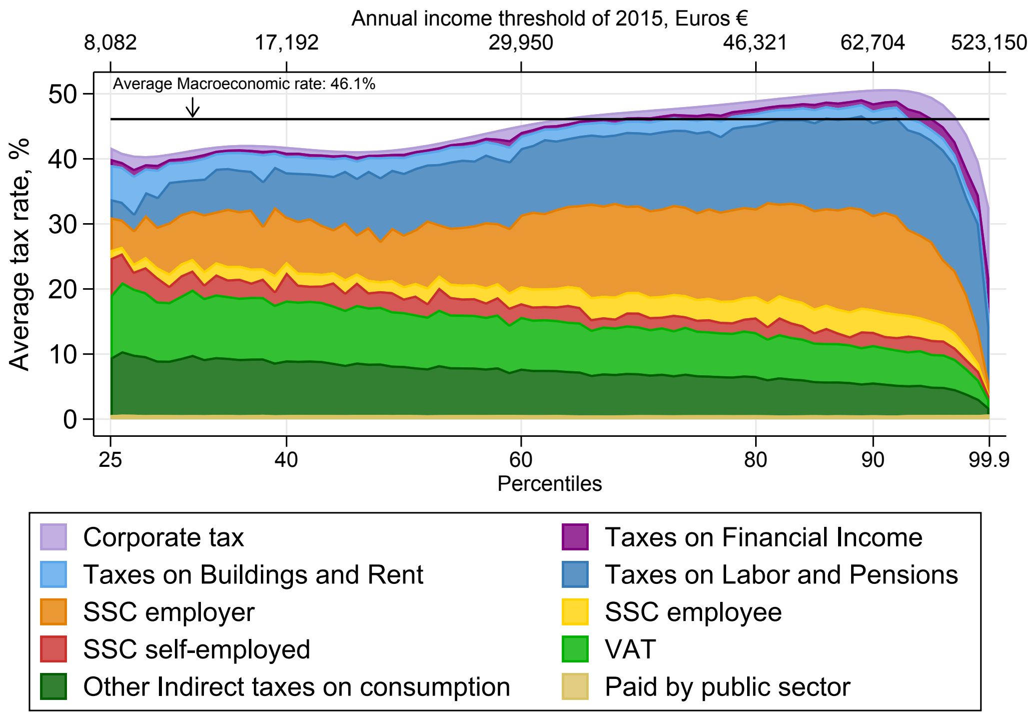

Figure A.8: Bank of Italy wealth composition